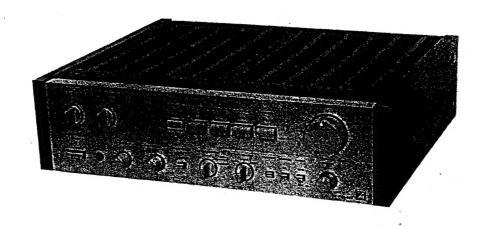
#### Hi-Fi Pre-Main Amplifier

## DENON

# SERVICE MANUAL MODEL PMA-950 PRE MAIN AMPLIFIER



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POWER AMP. UNIT PUS-029			• • •		'
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WIRING DIAGRAM	• • •			•••	,10

## NIPPON COLUMBIA CO., LTD.

#### SPEFICATIONS

POWER AMPLIFIER SECTION (TUNER -> SP OUT)

Rated Output:

Both channels driven

Subject to Change by

Temperature Test:

20 Hz ~ 20 kHz 80 W + 80 W

(8 ohm load)

1 kHz

100 W + 100 W

(4 ohm load)

**Total Harmonic Distortion:** 

Less than 0.004% Less than 0.01% (USA)

Intermodulation Distortion:

7 kHz/60 Hz: 1/4 at amplitude output equivalent to rated output

Less than 0.004% Less than 0.01% (USA)

Output Band Width:

5 Hz ~ 100 kHz (IHF, T.H.D

**Transmission** 

Characteristics:

1 Hz ~ 250 kH $^{+0}_{-3}$  dB (at 1 W

output)

Input Sensitivity:

150 mV 40 k ohm

Input Impedance: Output Impedance:

0.1 ohm (1 kHz)

SN Ratio (IHFA

Network):

110 dB (Input terminals short-

circuited)

**Output Terminals:** 

Speaker: A & B load 4 ~ 16 ohm,

A + B load 8 ~ 16 ohm; Headphone/Stereo headphone (Imped-

ance; changeable)

**EQUALIZER AMPLIFIER SECTION** 

**Equalizer Amplifier Output** 

(REC OUT Terminal): Maximum output 10 V (at 47

k ohm load)

Rated output 150 mV

Total harmonic wave distortion: below 0.001% (at 1 kHz, 8 V

output)

Input Sensitivity/

Input Impedance:

PHONO-1 MM 2.5 mV 47 k ohm

TUNER

PHONO-2MC 125µV 100 ohm 150 mV 40 k ohm

AUX, TAPE 150 mV 40 k ohm

**RIAA Deviation:** 

PHONO-1 MM Within ±0.2 dB

PHONO-2

(20 Hz ~ 100kHz) MC Within ±0.2 dB

(20 Hz ~ 100kHz)

**OVERALL CHARACTERISTICS** 

SN Ratio (IHA

Network):

PHONO-1 MM 90 dB (Input ter-

minals short-circuited,

at 2.5 mV input)

PHONO-2MC 75 dB (Input ter-

minals short-circuited,

at 250µV input)

TUNER, TAPE, AUX over 110 dB

(Input terminals short-

circuited)

Tone Control Adjustable

Loudness Characteristics:

Range:

AC OUTLET:

BASS

100 Hz ±8 dB 10 kHz ±8 dB

TREBLE

18 Hz.

Filtering Characteristcs: SUBSONIC

6 dB/oct

Low Frequency 100 Hz + 7 dB

High Frequency 10 kHz +6 dB

Not included in systems for

European use.

SWITCHED x 2,100 W (Total) UNSWITCHED x 1,250 W 110/120/220/240V (Multiple)

POWER SOURCE:

**POWER CONSUMPTION: 270 W** 

470 mm (W) x 140 mm (H) x DIMENSIONS:

410 mm (D) (including rubber feet, control knobs, and terminals)

WEIGHT:

14.5 kg

Design and specifications are subject to change without prior notice.

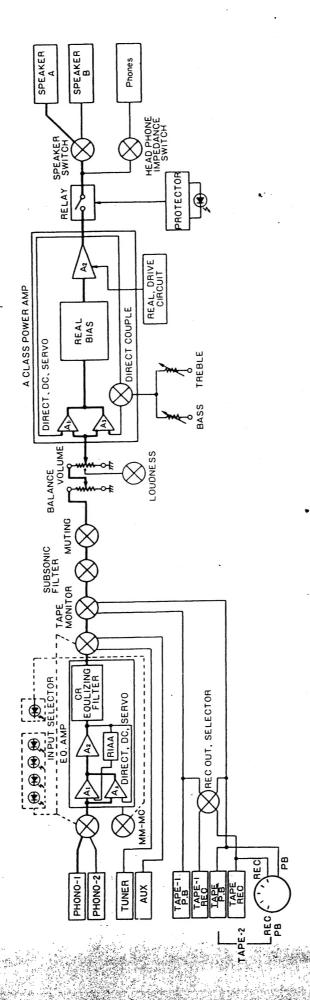
NOTE:

The following codes correspond to the appropriate models.

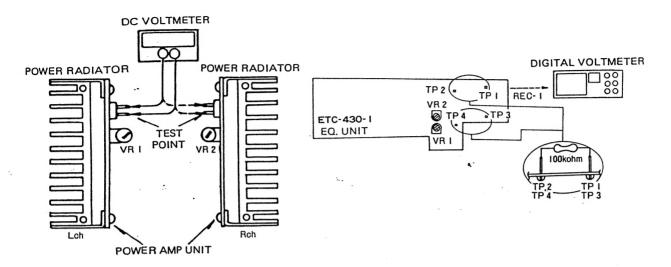
E2 for Europe and E1 for U.S.A., U.K., Hong Kong, Singapore.

This Service Manual is prepared based on E1.

#### BLOCK DIAGRAM



#### METHOD OF ADJUSTMENT



#### IDLE CURRENT ADJUSTMENT METHOD OF POWER AMP (PUS-029 PRINTED BOARD)

- 1. Place the unit in normal position, not sideways or tilted. Avoid too much ventilation, since the adjustment must be done where temperature is between 15°C and 30°C.
- 2. Set the switches on the unit as follows:

**Power** 

→ OFF

Volume

→ ∞ dB (min.)

Direct couple

→ DIRECT

- Speaker terminals → No load (no speaker connected)

  3. Remove the top cover, and the VR1 500 ohm and VR2 500 ohm of the tone & power amp printed board (22207000071) fully counter clockwise.

  Connect a DC voltmeter to the test points.
- 4. Plug in the AC cord to power outlet of: Europe 220 V (209~231 V); U.K. and Australia 240 V (228~252 V); Canada and U.S.A. 120 V (114~126 V); and turn the power on. Immediately (about after ten seconds), turn VR1 and VR2 clockwise and adjust the test point voltage (V<sub>TP</sub>) to 50±5 mV preliminarily.
- 5. After about two or three minutes of the above preliminary adjustment, adjust VR1 and VR2 so as VTP reads 80±5 mV.

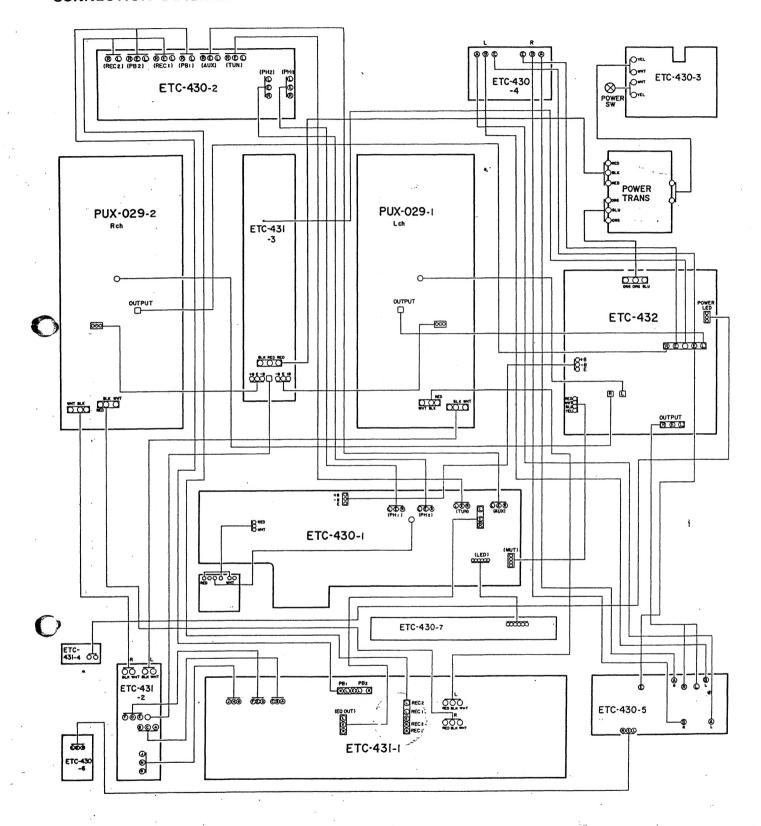
#### ADJUSTMENT OF EQUALIZER (ETC-430B PRINTED BOARD)

- Insert short pins into PHONO input terminals.
- Connect a digital voltmeter (0.01 mV ~ 1 mV DC range must be measurable) into each of REC. out terminals (L & R channels).
- 3. For easier measuring to avoid value fluctuation on the meter, connect a 100 k ohm (1/4W) resistor between the ends of the TP1/TP2 and TP3/TP4 on the printed board.
- 4. Set the FUNCTION switch to "MM" position, and turn the main volume to MIN.

#### **ADJUSTMENT**

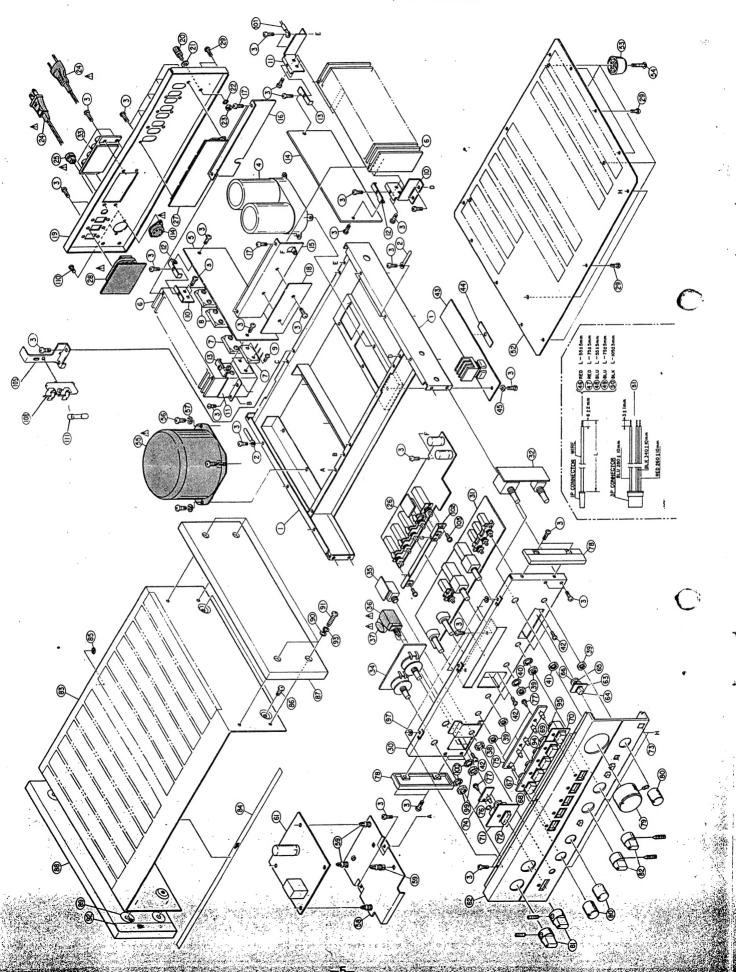
- Turn POWER on, and after two minutes warming-up conduct the following adjustments.
- 2. Adjust VR1 (100 k ohms Semi-Fixed Resistor), so as the L-channel digital voltmeter reads 0.5 mV DC or less.
- 3. Adjust VR2 (100 k ohms Semi-Fixed Resistor), so as the R-channel digital voltmeter reads 0.5 mV DC or less.

#### **CONNECTION DIAGRAM**



#### EXPLODED VIEW OF CHASSIS AND CABINET

Means important safety item, which must be replaced, when necessary, by a part specified or meeting the specification by the manufacturer.



#### EXPLODED VIEW OF PARTS LIST

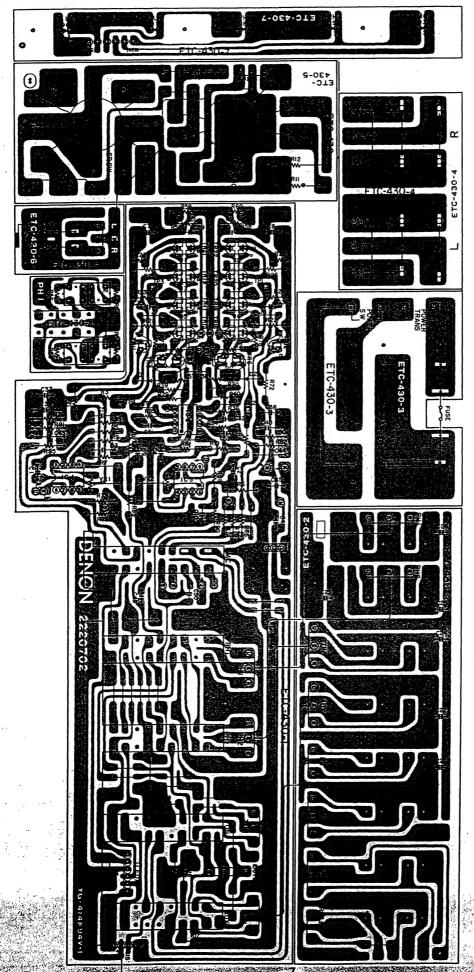
- Note1. See addendum list below for the parts with asterisk (\*) on the Ref. No. and the other parts not included in this list.
  2. This list is prepared based on E1.

D-6 31	Deat M.	Don't Name 9 Description	Pot No	Davi No	Post Name 9 Designation
Ref. No.	Part No.	Part Name & Descriptions	Ref. No.	Part No.	Part Name & Descriptions
1	4110293004	MAIN CHASSIS ASS.	58	4120725300	BOARD BRACKET
2	EP-4772	CORD HOLDER	59	MD-5271	P.C.B. SUPPORT
3	4730354035	TAPPING SCREW (2)3×8	60	-	
4	2546027008	CHEMICON 22000µFx2 63 V	61	ETC-432	POWER SUPPLY & PROTEC-
4 5 6	PUX-029-1	POWER AMP UNIT	11		TOR UNIT
6	4170139001	POWER RADIATOR	62	1440825006	FRONT PANEL
7	2710145020	TRANSISTOR 2SA1215LB(0)/	63	1140050003	PANEL BUSH
		(Y)	64	1130191105	PUSH KNOB
8	2730247021	TRANSISTOR 2SC2921LB(0)/	65	4630226014	SPRING
3	2.0027/02/	(Y)	66	1190014002	STOPPER .
9	4700012022	CROSS PAN SCREW WITH S.	67	1140054203	PANEL BUSH
9	7700012022	WASHER 3x12	68	1130259102	PUSH KNOB ASS.
40	4400071005	RADIATOR BRACKET (A)			
10	4120871005		69	4630246007	SPRING
11	4120872004	RADIATOR BRACKET (B)	70	1140057103	PANEL BUSH
12	4120873003	BRACKET (A)	71	1140051002	PANEL.BUSH (C)
13	4120874002	BRACKET (B)	72	1130192007	PUSH KNOB ASS.
14	PUX-029-2	POWER AMP (R) UNIT	73	1350035012	MARK
15	4140234208	SHIELD BRACKET (A)	74	ETC-431B-4	POWER LED UNIT
16	4140235207	SHIELD BRACKET (B)	75	ETC-430B-7	INPUT LED UNIT (POWER
17	4730353036	TAPPING SCREW (2)3×6	11		LED)
	,	(BLACK)	76	4770063108	INSULATING WASHER
18	4140236002	SHIELD PLATE	77	4730304014	TAPPING SCREW (1)3x8
*19	1050411004	BACK PANEL	78	1460283110	ESC. PLATE
20	2050043109	GND TERMINAL	79	1120333106	KNOB (VOLUME)
21	4770088002	ø4.1 WASHER	1 80	1120334008	KNOB (BALANCE, TONE)
22	4753100004	64 TOOTH WASHER	81	1120335007	KNOB (SPEAKER)
23	4770006000	M4 NUT	82	1120336006	KNOB (TAPE)
20	2006031026	ALE ESTRE	83	1020120008	TOP COVER
<b>永</b> 夢	Mick Burn	ELSHING	84		
	ETO JOOR 1	INPUT & EQ-UNIT (EQ.)		1220069008	SPACER
26	ETC-430B-1		85	1040034006	STOPPER
27	ETC-430B-2	INPUT & EQ-UNIT (INPUT)	86	4734801005	TAPPING SCREW TRUS 4x8
		NINESTERNECEDINE (OF THERE)	87	1011145005	WOOD BOARD (R)
29	4770064107	FIXING SCREW	88	1011146004	WOOD BOARD (L)
30	4110291103	FRONT CHASSIS	89	1240032015	FELT SHEET
31	ETC-431B-1	CONTROL UNIT (CONTROL)	90	4751006016	φ5 WASHER (BLACK)
32	ETC-431B-2	CONTROL UNIT (VOLUME)	91	4734460035	TAPPING SCREW TRUS 4x20
33	ETC-430B-4	INPUT & EQ. UNIT (SPEAKER	92	1220069037	SPACER
.:		TERMINAL)	93	4751006016	φ4 SPRING WASHER
34	ETC-430B-5	INPUT & EQ. UNIT (SPEAKER	94	4610167009	CUSHION
		SWITCH)	95	4610156023	SPACER
35	ETC-430B-6	INPUT & EQ. UNIT (HEAD-	96	_	_
		PHONE)	97	_	_
M36	£2124263022	POSHSWITCH	98	_	_
<u>₩</u> 33	2538003014	ROTTO CAPACITOR	99		M9 NUT (SPARE)
		0.02974F200V	100		φ9 TOOTH WASHER (SPARE)
38	SEAL CONTRACTOR OF SHEET OF SHEET	M12 NUT (SPARE)	101	2050003000	3T LUG (ETC-430B)
39		M7 NUT (SPARE)	102	4120875001	
		67 TOOTH WASHER (SPARE)	102	4120075001	5P SWITCH BRACKET (ETC-
40			100	470000000	430B)
41	4744 000040	M8 NUT (SPARE)	103	4700009006	CROSS PAN SCREW WITH S.
42	4711303018	CROSS PAN SCREW 3x6			WASHER 3x6 (ETC-430B)
43	ETC-431B-3	CONTROL UNIT (RECT)	104	_	
44	2050125001	EARTH PLATE	105	4120892000	BRACKET (A)
45	4751003006	φ3 WASHER	106	-	-
46	2030222005	1P CONNECTOR CORD (Lch,	107	4150173003	INSULATING SHEET
		+B)	108	2020011006	FUSE HOLDER
47	2030222018	1P CONNECTOR CORD (Rch,	109	4120238101	BRACKET
•		+B)	110	4711303034	CROSS PAN SCREW 3x6
48	2030222021	1P CONNECTOR CORD (Rch,			(BLACK)
		-B)	*111	2061025093	FUSE 125V 4A TIME LAG
49	2030222034	1P CONNECTOR CORD (Lch,	'''	200.020000	TYPE
. 49	2000222004	-B)	112	5130159185	FUSE LABEL (T.4.0A)
	2030222047	1P CONNECTOR CORD (E)			
50	2030222047	IF CONNECTOR CORD (E)	113	2048070003	5P. CONNECTOR (DIN)
51	105022535	BOTTOM COVER	<b>医小片</b> 不 <b>在</b> 是	STRUBERTON	Antia defendiamiles
52	1050336215	BOTTOM COVER			PACKING & ACCESSORIES
53	1040027107	FOOT	<u> </u>	E0400=====	
54	4739051009	CROSS PAN SCREW WITH		5040055007	CABINET SHEET
		WASHER 3x20		5030281001	CUSHION
6 <b>1</b> \ 35 56		RIVER THE PLANTS		5010755007	CARTON CASE
56	4730455031	TAPPING SCREW (2) 4x10		5110919002	INST. MANUAL
57	4752004004	φ4 SPRING WASHER			

#### ADDENDUM LIST

		Part No.				Part No.		
Ref. Part Nam	Part Name E2 For Europe	E2 For Europe		Ref. No.	Part Name	E2 For Europe	E3 For USA, EC For Canada	
19	BACK PANEL	1050434007	The Talk Marie Control	75	INPUT & EQ-UNIT	ETC-430D-7	ETC-430B-7	
光绘目	( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )			115	(POWER LED)	4150088004		
26	INPUT & EQ-UNIT	ETC-430D-1	ETC-430B-1	116	7PW TERMINAL	2050089008		
27	(EQ)	ETC-430D-2	ETC-4308-2	117	C. PAN SCREW WITH S. W. 3×8	4700042005		
constitution of	(INPUT)	多种种的 医性神经炎 经分	行中的特别的 <b>对对</b>	118	M3 NUT	4756006008	•	
the state of				111	FUSE	2061015087 (4A)	SWA ALTONIA	
33	INPUT & EQ-UNIT	ETC-430D-4	ETC-430B-4	119	C.SCREW WITH S. W 3x8 (BLACK)	4700042005		
34	(SPEAKER)	ETC-430D-5	ETC-430B-5	120	FUSE LABEL	5130622010		
100	(SP. SWITCH)		ETC-4308-6	1802	2.0000	(T.8.0A)	7.0	
ે 35 ∤	INPUT & EQ-UNIT (H. PHONE)	ETC-430D-6	E I C = 30B-0	-	- Contract to	The second of		

### PRINTED CIRCUIT BOARD PATTERNS AND PARTS LIST INPUT & EQ. UNIT ETC-430B



#### ETC-430B PARTS LIST

IC01	3	SEMICONDUCTORS	2	DEA	044000000		
IC01		020000	3	R54	2412002005	220 ohm	±5% 1/4
IC02	2630133002 2630118001	NJM4560D INT	EGRATED CIRCUIT	R55	2412002005	220 ohm	±5% %
IC03 TR03	2630133002 2730198031	μPC741C INT 2SC1815(BL)/(GR)	EGRATED CIRCUIT TRANSISTOR	R56	2412002005	220 ohm	±5% %
TR04	2730198031	2SC1815(BL)/(GR)	TRANSISTOR	R57	2412068007	100	+E0/ 1/1
TR05	2730198031	2SC1815(BL)/(GR)	TRANSISTOR	R58	2412068007		±5% %1
TR06	2730198031	2SC1815(BL)/(GR)	TRANSISTOR	R59	2412133000		
		2SA1015(Y)/(GR)		R60			
<b>TR15</b>	2750029041	2SK240(GR)/(BL)	FIELD EFFECT	PAR FALL	1 321 341 1192	a an bine	
TR16	2750029041	2SK240(GR)/(BL)	FIELD EFFECT	10.37%	केश के सामा	7 7/9 non-	
TR17	2750029041	2SK240(GR)/(BL)	FIELD EFFECT TRANSISTOR	R73	2412067008	91 ohm	±5% %\ ±5% %\
TR18	2750029041	2SK240(GR)/(BL)	FIELD EFFECT TRANSISTOR	· R76	2412108006	4.7 ohm	±5% %\ ±5% %\ ±5% %\
			TRANSISTOR	R78 R79	2412312009	2.7 M ohm	1 ±5% %\
			TRANSISTOR	R80 R81	2412106008	3.9 k ohm	±2% %\
			TRANSISTOR	R82 R83	2412060005	47 k ohm 47 ohm	±2% ¼\ ±2% ¼\
		HZ-4-B3	TRANSISTOR DIODE	R85	2412155004	430 k ohm	
D02	2760185001	HZ-4-B3	DIODE				±2% ¼V ±2% ¼V
D03	3939091006	TLY206(YELLOW)	LIGHT EMITTING	R88			±2% %V
D06	3939040002	TLG206 (GREEN)	LIGHT EMITTING	R89 R90	2412068007 2412068007	100 ohm 100 ohm	±2% ¼V ±2% ¼V
D07	3939040002	TLG206 (GREEN)	LIGHT EMITTING	001	254400000	CAPACITO	
D08	3939040002	TLG206 (GREEN)	LIGHT EMITTING DIODE	C02	2544003008	100µF	6.3 6.3 +10% 63
D09	3939040002	TLG206 (GREEN)	LIGHT EMITTING DIODE	C03 C04 C07	2561017019	0.01µF	±10% 639 ±10% 639
		RESISTORS		C08	2544013001	470µF	10
VR01	2116025032			C09	2556160078	0.0068μF	±5% 50
VR02 R01	2116025032 2412092002	1 k ohm ±5% 1/4W	CARBON FILM	C10	2556160078	0.0068µF	±5% 50°
				C15	2544044009	1μF	501
					2544043000	0.47µF	50
R05	2412112005	6.8 k ohm ±5% ¼W	CARBON FILM				50° 50°
				C24	2544043000	0.47µF	501
				C25	2544043000	0.47µF	501
R09	2412123007	20 k ohm ±5% ¼W	CARBON FILM			0.47μF	50\
R10	2440087021	Section of the sales	NETAL OX (DE PERM)				±5% 50\
	2440087021	120 mm = 33 4W	Maryle et el				±5% 50\
		2220hm + 5% 2W	WEAR GOX DESERVING				±5% 50\ ±5% 50\
				<b>C35</b>	2541035008		20% 35\
R17	2412068007			C36	2541035008	1μF ±	20% 35\
R18	2412068007						±1% 100
		100 ohm ±5% %W	CARBON FILM				±1% 100 ±2% 100
				C40	2554083034	0.018µF	±2% 100
	2412098006	1.8 k ohm ±5% ¼W	CARBON FILM	C41	2544038002	100μF	35V
R24	2412098006	1.8 k ohm ±5% 1/4W	CARBON FILM				±2% 100
R25				C45			±2% 100 35V
R26 R27			CARBON FILM	C49	2556160081	0.0075μF	±5% 50V
R28	2412020016		CARBON FILM	C50	2556160081		±5% 50V
N. F.	2002 to 1000						±5% 50V
N -3610	The Contract of		CAPANAR PREMI				±5% 50V
R35 R36	2412076002	220 ohm : ±5% %W	CARBON FILM	C56	2544044009	1μF	50V
H37	2412022043						
R38	2412022043			1 1			
(*ASC#60)	品等在14. NA - 182 ·	THE RELIGIOUS AND ADMINISTRAL	STANDING				
il it by the s				CHAIN .	EP-5667H1	TERMINAL	WRAPPI
			the state of	SW01   SW02		ROTARY SI ROTARY SI	
				TO SERVICE WITH WICE AND ADDRESS.			
®R53 ≇1	2412002005	220 ohm - EV 1/14	CARBON FILM	> SW03	2124290008	4P. PUSH SV	
	TR11 TR12 TR15 TR16 TR17 TR18 TR19 TR20 TR21 TR22 D01 D02 D03 D06 D07 D08 D09  VR01 VR02 R01 R02 R03 R04 R05 R06 R07 R08 R09 R10  VR01 VR02 R01 R02 R03 R04 R05 R06 R07 R08 R09 R10 R15 R16 R17 R18 R19 R21 R22 R23 R24 R25 R26 R27 R28 R35 R36 R37 R28	TR11 2710102034 TR12 2710102034 TR15 2750029041 TR16 2750029041 TR17 2750029041 TR18 2750029041 TR19 2750029041 TR20 2750029041 TR21 2750029041 TR22 2750029041 TR22 2750029041 TR22 2760185001 D03 3939040002 D06 3939040002 D07 3939040002 D08 3939040002 D09 3939040002 D09 3939040002  VR01 2116025032 VR02 2412092002 R03 2412116001 R04 2412116001 R05 2412112005 R06 2412112005 R07 2412116001 R08 2412116001 R09 2412123007 R10 241213007 R10 241213007 R10 2412068007 R17 2412068007 R17 2412068007 R17 2412068007 R17 2412068007 R17 2412068007 R17 2412068007 R19 2412068007 R17 2412068007 R19 2412068007 R21 2412098006 R23 2412098006 R24 2412098006 R25 2412098006 R26 2412098006 R27 2412098006 R27 2412098006 R28 2412098006 R27 2412098006 R27 2412098006 R28 2412098006 R27 2412098006 R27 2412098006 R27 2412098006 R28 2412098006 R27 2412092043	TR11 2710102034 2SA1015(Y)/(GR) 2SA1015(Y)/(GR) 2SA1015(Y)/(GR) 2SA1015(Y)/(GR) 2SK240(GR)/(BL) 2SK240(GR)/(BL	TR11   2710102034   2SA1015(Y)/(GR)   TRANSISTOR   TRANSI	TR11	TRI1	TR11

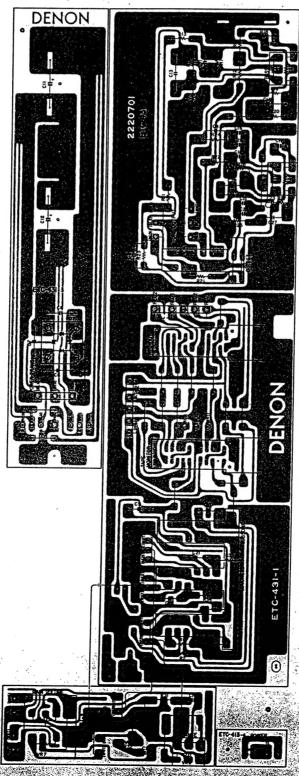
No.	Part No.	Part Name & Descriptions
R54	2412002005	220 ohm ±5% ¼W CARBON FILM
R55	2412002005	STANDING 5 220 ohm ±5% ¼W CARBON FILM
R56	2412002005	STANDING
		STANDING
R57 R58	2412068007 2412068007	100 ohm ±5% ¼W CARBON FILM
R59 R60	2412133000 2412133000	51 k ohm ±5% ¼W CARBON FILM
Main Frat	1 24 12 (1.03)	S. Fireth ready with a composition and the com-
(ii), 1973.	कर्म अन्त्राह्मा	
R73	2412067008	
R74	2412067008 2412108006	
R76	2412108006	4.7 ohm ±5% %W CARBON FILM
R77	2412312009	
R79	2412106008	3.9 k ohm ±2% ¼W CARBON FILM
R80 R81	2412106008 2412132001	
R82	2412132001	47 k ohm ±2% %W CARBON FILM
R83	2412060005 2412060005	
R85	2412155004	
R86	2412155004	430 k ohm ±2% %W CARBON FILM
R87	2412068007 2412068007	
R89	2412068007	100 ohm ±2% ¼W CARBON FILM
R90	2412068007	100 ohm ±2% ¼W CARBON FILM
C01	2544003008	CAPACITORS  100µF 6.3VELECTROLYTIC
CO2	2544003008	100.E COVELECTROLYTIC
C03	2561017019	1
C04 C07	2561017019 2544013001	0.01µF
C08	2544013001	470µF 10V ELECTROLYTIC
C09	2556160078	0.0068µF ±5% 50V PLASTIC FILM FORMING
C10	2556160078	0.0068μF ±5% 50V PLASTIC FILM FORMING
C15	2544044009	1μF 50V ELECTROLYTIC
C21 C22	2544043000 2544043000	0.47µF 50V ELECTROLYTIC 0.47µF 50V ELECTROLYTIC
C23	2544043000	0.47µF 50V ELECTROLYTIC
C24 C25	2544043000 2544043000	0.47µF 50V ELECTROLYTIC 0.47µF 50V ELECTROLYTIC
C26	2544043000	0.47μF 50V ELECTROLYTIC
C29	2556159018	120pF ±5% 50V PLASTIC FILM FORMING
<b>C30</b>	2556159018	120pF ±5% 50V PLASTIC FILM
C31	2554149004	FORMING 0.0015µF ±5% 50V PLASTIC FILM
ස2 ස5	2554149004 2541035008	0.0015μF ±5% 50V PLASTIC FILM 1μF ±20% 35V ELECTROLYTIC
C36	2541035008	1μF ±20% 35V ELECTROLYTIC
C37	2554070018	0.001 µF ±1% 100V PLASTIC FILM
ස <sub>8</sub> ස <sub>9</sub>	2554070018 2554083034	0.001μF ±1% 100V PLASTIC FILM 0.018μF ±2% 100V PLASTIC FILM
C40	2554083034	0.018µF ±2% 100V PLASTIC FILM
C41 C43	2544038002 2554083047	100μF 35V ELECTROLYTIC 0.068μF ±2% 100V PLASTIC FILM
C44	2554083047	0.068µF ±2% 100V PLASTIC FILM
C45 C49	2544038002 2556160081	100μF 35V ELECTROLYTIC 0.0075μF ±5% 50V PLASTIC FILM
C50	2556160081	FORMING 0.0075µF ±5% 50V PLASTIC FILM
C51	2556159092	FORMING 470pF ±5% 50V PLASTIC FILM
C52	2556159092	FORMING 470pF ±5% 50V PLASTIC FILM
C55		FORMING 1µF 50V ELECTROLYTIC
C56	2544044009	1μF 50V ELECTROLYTIC
<del>- 1</del>		OTHER PARTS
	2220702102   2090047903	P.W. BOARD
	2090008133	JUMPER SHOTLEAD USED 11
SW01		TERMINAL WRAPPING PIN USED 8 ROTARY SWITCH FOR SPEAKER
€ SW02	2120188004	ROTARY SWITCH FOR H.P., IMPEDANCE
SW03		4P. PUSH SWITCH FOR FUNCTION

#### (Con.)

R	of. Part No.	Part Name & Descriptions	Ref; No.	Part No.	
SW	04 2124291007	1P. PUSH SWITCH FOR MC~MM		2034152029	3P
	2033909008	AC OUTLET		2034152032	3P
	2050070004	8P. TERMINAL FOR SPEAKER	i i	2038092004	5P
	EP-5870	FUSE HOLDER USED 2	11	2038093003	5P
	2061017027	FUSE 8A	- 11 .	2040075019	6P
	2048045009	4P. PIN JACK	11	4120875001	5P
	2048078005	4P. CONNECTOR BASE ASS.		4700009006	CF
	2050122033	3P. CONNECTOR PIN ASS.	11		3×
	2035622024	4P. MINI CONN. PIN		4450033005	W
	2035622008	3P. CONN. BASE	L01	2318017000	IN
	2035622082	6P. CONN. BASE	L02	2318017000	IN
	2050003000	3T LUG	L03	2318017000	IN
	2034152003	3P. CONTACT WIRE ASS. FOR PH1	L04	2318017000	IN
	2034152016	3P. CONTACT WIRE ASS. FOR PH2	11		l

Ref: No.	Part No.	Part Name & Description
L01 L02 L03 L04	2034152029 2034152032 2038092004 2038093003 2040075019 4120875001 4700009006 4450033005 2318017000 2318017000 2318017000	3P. CONTACT WIRE ASS. FOR TON 3P. CONTACT WIRE ASS. FOR AUX 5P. CONNECTOR CORD FOR REC 5P. CONNECTOR CORD FOR LED 6P. CONNECTOR CORD FOR LED 5P. SWITCH BRACKET CROSS PAN SCREW WITH S. WASHER 3x6 WIRE CLAMP BAND INDUCTOR INDUCTOR INDUCTOR INDUCTOR

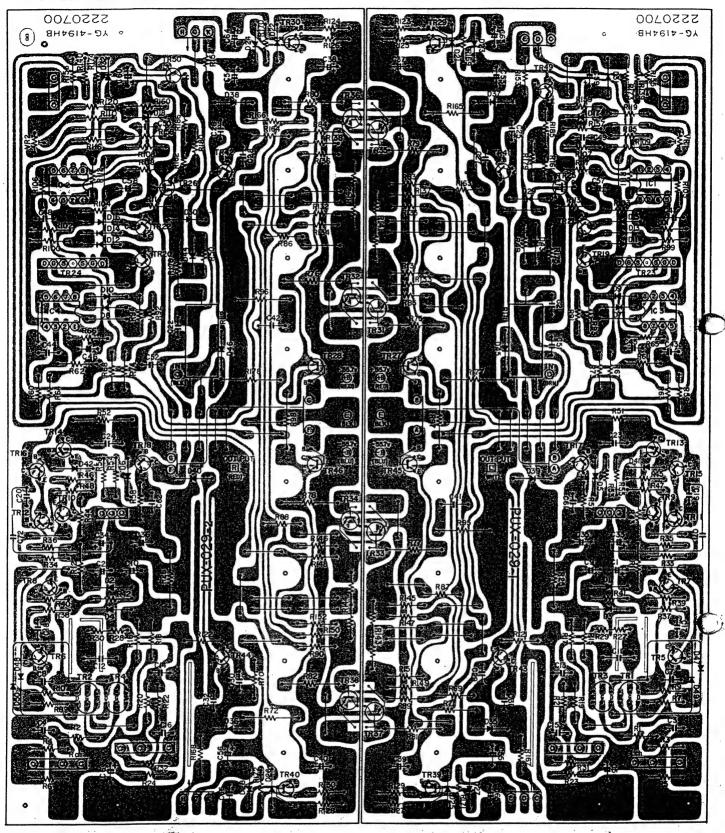
#### CONTROL UNIT ETC-431B



#### ETC-431B PARTS LIST

Ref.	Part No.	Part Name & Descriptions	Ref. No.	Part No.	Part Name & Descriptions
		SEMICONDUCTORS		•	OTHER PARTS
D04 D07	3939032007 2760312007	TLR206(RED) LIGHT EMITTING DIODE S10VB20F DIODE		2220701006 2090047903 EP-5667H1	P.W. BOARD 0.6 JUMPER WIRE USED 23 TERMINAL FOR WRAPPING PIN USED 1
		RESISTORS		2050087039	3P. TERMINAL USED 1
VR03	2110278005	VARIABLE RESISTOR 100 k ohm (FOR BASS)	SW01	2050122059 2124288007	5P. CONNECTOR PIN ASS.  1P. PUSH SWITCH FOR DIRECT
VR05	2110277006	VARIABLE RESISTOR 50 k ohm (FOR TREBLE)	SW02 SW03	2120190005 2120189003	ROTARY SWITCH (A) FOR REC OUT ROTARY SWITCH (B) FOR MONITOR
VR06	2110256108	VARIABLE RESISTOR 100 k ohm (FOR BALANCE)	SW04	2124289006 2034147005 2034149016	3P. PUSH SWITCH FOR SUB. LOUD, MUT. 3P. CONNECTOR CORD FOR +B,E,-B 3P. CONNECTOR CORD FOR EQ OUT
VR07	2110276007	VARIABLE RESISTOR 55 k ohm (FOR MAIN VR)		2034150021 2034150034	3P. CONNECTOR CORD FOR TONE OUT (L) 3P. CONNECTOR CORD FOR TONE OUT (R)
R01 R02	2412130003 2412130003	39 k ohm ±5% ¼W CARBON FILM 39 k ohm ±5% ¼W CARBON FILM		2034156009 2034156012	3P. CONNECTOR CORD FOR VOL OUT (L) 3P. CONNECTOR CORD FOR VOL OUT (R)
R03	2412108006 2412108006	4.7 k ohm ±5% %W CARBON FILM 4.7 k ohm ±5% %W CARBON FILM		2034146019	3P. CONNECTOR CORD FOR POWER LED
R04 R09	2420203003	10 M ohm ±10% ¼W CARBON COMPOSIT		4140062001	SHIELD PLATE
R10	2420203003	10 M ohm ±10% ½W CARBON COMPOSIT			
R11	2412084007	470 ohm ±5% %W CARBON FILM 470 ohm ±5% %W CARBON FILM			
R12 R13	2412084007	8.2 k ohm ±5% ¼W CARBON FILM			
R14	2412114003	8.2 k ohm ±5% ¼W CARBON FILM			
R15	2412094000	1.2 k ohm ±5% %W CARBON FILM 1.2 k ohm ±5% %W CARBON FILM			
R16	2412094000 2412138005	82 k ohm ±5% %W CARBON FILM			
R17 R18	2412138005	82 k ohm ±5% ¼W CARBON FILM			
R19	2412115002	9.1 k ohm ±5% ¼W CARBON FILM	-		
R20 R21	2412115002 2412063002	9.1 k ohm ±5% ½W CARBON FILM 62 ohm ±5% ½W CARBON FILM			
R22	2412063002	62 ohm ±5% %W CARBON FILM			
R23	2412099005	2 k ohm ±5% ½W CARBON FILM			•
R24 R25	2412099005	2 k ohm ±5% %W CARBON FILM 300 ohm ±5% %W CARBON FILM			
R26	2412079009	300 ohm ±5% ½W CARBON FILM			
R27	2412084007	470 ohm ±5% ¼W CARBON FILM			
R28	2412084007	470 ohm			
R31	2412120000	15 k ohm ±5% ½W CARBON FILM		1.0	
R33	2412103001	3 k ohm ±5% ¼W CARBON FILM			
R34	2412103001	3 k ohm ±5% ½W CARBON FILM			
C03	2554127000	CAPACITORS  180pF ±5% 50V PLASTIC FILM			
C03	2554127000	180pF ±5% 50V PLASTIC FILM			
C05	2561016007	0.068µF ±10% 400V METALIZED			1
C06	2561016007	0.068μF ±10% 400V METALIZED 0.068μF ±10% 400V METALIZED			
C07 C08	2561016007 2561016007	0.068µF ±10% 400V METALIZED	1		
C09	2554082048	0.18µF ±5% 100V PLASTIC FILM			
C10	2554082048	0.18µF ±5% 100V PLASTIC FILM	1		
C11 C12	2554183002 2554183002	0.039µF			•
C13	2554082080	0.27μF ±5% 100V PLASTIC FILM			•
,C14	2554082080	0.27μF ±5% 100V PLASTIC FILM			
C15	2554161008 2554161008	0.0047µF ±5% 50V PLASTIC FILM 0.0047µF ±5% 50V PLASTIC FILM			
C16	2554101008	180pF ±5% 50V PLASTIC FILM			
C18	2554127000	180pF ±5% 50V PLASTIC FILM			
C19*	2554142001	750pF ±5% 50V PLASTIC FILM 750pF ±5% 50V PLASTIC FILM			
C20 C21	2554142001 2554193005	0.1µF ±5% 50V PLASTIC FILM			_
C22	2554193005	0.1μF ±5% 50V PLASTIC FILM			<b>▼</b>
C23	2554147006	0.0012µF ±5% 50V PLASTIC FILM 0.0012µF ±5% 50V PLASTIC FILM			
C24 C25	2554147006 2554155001	0.0012µF ±5% 50V PLASTIC FILM 0.0027µF ±5% 50V PLASTIC FILM			
C26	2554155001	0.0027µF ±5% 50V PLASTIC FILM			•
C27	2554187008	0.056μF ±5% 50V PLASTIC FILM 0.056μF ±5% 50V PLASTIC FILM			
C28	2554187008	U.UOOME ION OUV FLASTIC FILM			

#### **POWER AMP UNIT PUS-029**



#### **PUS-029 PARTS LIST**

Γ	Ref. No.	Part No.	Part Name	& Descriptions
$\vdash$			SEMICONDUCTORS	S
H	IC01	2630081002		TEGRATED CIRCUIT
	IC02	2630081002		TEGRATED CIRCUIT TEGRATED CIRCUIT
	IC03 IC04	2630081002 2630081002		TEGRATED CIRCUIT
	TR01	2750022035	2SK129A(K)/(L)	FIELD EFFECT
		2750022035	2SK129A(K)/(L)	TRANSISTOR FIELD EFFECT
	TR02	2750022035		TRANSISTOR
	TR03	2750022035	2SK129A(K)/(L)	FIELD EFFECT TRANSISTOR
	TR04	2750022035	2SK129A(K)/(L)	FIELD EFFECT
		2730235020	2SC1841(F)/(E)	TRANSISTOR TRANSISTOR
	TR05	2730235020	2SC1841(F)/(E)	TRANSISTOR
	TR07	2730235020	2SC1841(F)/(E)	TRANSISTOR
l	TR08	2730235020	2SC1841(F)/(E)	TRANSISTOR TRANSISTOR
l	TR09 TR10	2710102005 2710102005	2SA1015(Y) 2SA1015(Y)	TRANSISTOR
	TR11	2710102005	2SA1015(Y)	TRANSISTOR
	TR12	2710102005	2SA1015(Y)	TRANSISTOR
	TR13	2710110000.		TRANSISTOR
	TR14	2710110000 2710110000	2SA916(L) 2SA916(L)	TRANSISTOR TRANSISTOR
	TR15	2710110000	2SA916(L)	TRANSISTOR
	R17	2730205005	2SC1941(L)	TRANSISTOR
	R18	2730205005	2SC1941(L)	TRANSISTOR
	TR19	2730198015	2SC1815(BL) 2SC1815(BL)	TRANSISTOR TRANSISTOR
	TR20 TR21	2730198015	2SC1815(BL) 2SC1815(BL)	TRANSISTOR
	TR22	2730198015	2SC1815(BL)	TRANSISTOR
	TR23	2750024059	μPA68H(M)/(N)	FIELD EFFECT
			2 - 2011/24\ //AI\	TRANSISTOR
	TR24	2750024059	μPA68H(M)/(N)	FIELD EFFECT TRANSISTOR
1.	TR25	2750020024	2SK163(M)/(N)	FIELD EFFECT
1				TRANSISTOR
-	TR26	2750020024	2SK163(M)/(N)	FIELD EFFECT TRANSISTOR
1	TR27	2730199027	2SC2238(Y)/(O)	TRANSISTOR
	TR28	2730199027	2SC2238(Y)/(O)	TRANSISTOR
	TR29	2740060007	2SD667A(C)	TRANSISTOR
1	TR30	2740060007	2SD667A(C) 2SC2921LB(O)/(Y)	TRANSISTOR TRANSISTOR
	TR31 TR32	2730247021 2730247021	2SC2921 LB(O)/(Y) 2SC2921 LB(O)/(Y)	TRANSISTOR
	TR33	2710145020	2SA1215LB(O)/(H)	TRANSISTOR
	TR34	2710145020	2SA1215LB(O)/(Y)	TRANSISTOR
	TR35	2730247021	2SC2921 LB(O)/(Y)	TRANSISTOR TRANSISTOR
	TR36 TR37	2730247021 2710145020	2SC2921LB(O)/(Y) 2SA1215LB(O)/(Y)	
	TR38	2710145020	2SA1215LB(O)/(Y)	TRANSISTOR
	TR39	2720053005	2SB647A(C)	TRANSISTOR
	TR40	2720053005	2SB647A(C)	TRANSISTOR TRANSISTOR
1	TR41	2730198002 2730198002	2SC1815(Y) 2SC1815(Y)	TRANSISTOR TRANSISTOR
12	R42	2710102005	2SA1015(Y)	TRANSISTOR
	TR44	2710102005	2SA1015(Y)	TRANSISTOR
	TR45	2710104029	2SA968(Y)/(O)	TRANSISTOR
	TR46	2710104029 2710102005	2SA968(Y)/(O) 2SA1015(Y)	TRANSISTOR TRANSISTOR
	TR50		2SA1015(Y)	TRANSISTOR
	D01	2760219003	HZ-15	DIODE
1	D02	2760219003	HZ-15 HZ-15	DIODE
	D03 D04	2760219003 2760219003	HZ-15 HZ-15	DIODE
	D05	2760171028	HV-23G(YL)	DIODE
	D06	2760171028	HV-23G(YL)	DIODE
	D07	2760049008	1S2076 1S2076	DIODE
	D08 - D09	2760049008 2760049008	1\$2076 1\$2076	DIODE
	D10	2760049008	1S2076	DIODE
	D11	2760049008	1S2076	DIODE .
	D12	2760049008	1S2076 1S2076	DIODE
	D13 D14	2760049008 2760049008	1S2076 1S2076	DIODE
1	D15	2760216019	KB-265	DIODE
	D16	2760216019	KB-265	DIODE
L	D17	2760049008	1S2076	DIODE
	D18 D21	2760049008 2760254000	1S2076 HZ-7B-3	DIODE
14	D21 D22	2760254000	HZ-7B-3 HZ-7B-3	DIODE
	D23	2760049008	1S2076	DIODE
	D24	2760049008	1S2076	DIODE
	D25 D26	2760254000 2760254000	HZ7B-3 HZ7B-3	DIODE
3	D26 D27	2760049008	1S2076	DIODE
1	D28* D29	2760049008	1S2076	DIODE ***
化异子放大	A Transport	1 070004004 S	1S2076A	DIODE

Ref. No.	Part No.	Part Name 8	& Descriptions	Ref. No.	Part No.	Part Name	& Descriptions
		SEMICONDUCTORS		D30	2760049011	1S2076A	DIODE
IC01	2630081002	NJM4558D INT	EGRATED CIRCUIT	D31	2760049008	1S2076 1S2076	DIODE DIODE
iC02	2630081002	NJM4558D INT	EGRATED CIRCUIT	D32	2760049008 2760049011	1S2076A	DIODE
IC03	2630081002	NJM4558D INT	EGRATED CIRCUIT	D36	2760049011	1\$2076A	DIODE
IC04	2630081002		EGRATED CIRCUIT	D37	2760049011	1S2076A	DIODE
TR01	2750022035	2SK129A(K)/(L)	FIELD EFFECT	D38	2760049011	1S2076A	DIODE
T000	2750022025	2SK129A(K)/(L)	TRANSISTOR FIELD EFFECT	D39	2760049011	1S2076A	DIODE
TR02	2750022035	25K129A(KI/(LI	TRANSISTOR	D40	2760049011	1S2076A	DIODE
TR03	2750022035	2SK129A(K)/(L)	FIELD EFFECT	D41	2760244007	MZ303A	DIODE
11100			TRANSISTOR	D42 D43	2760244007 2760177006	MZ303A MZ-306	DIODE
TR04	2750022035	2SK129A(K)/(L)	FIELD EFFECT	D44	2760177006	MZ-036	DIODE
·		2001011/51/151	TRANSISTOR	D45	2760049011	1S2076A	DIODE
TR05	2730235020	2SC1841(F)/(E)	TRANSISTOR TRANSISTOR	D46	2760049011	1S2076A	DIODE
TR06   TR07	2730235020 2730235020	2SC1841(F)/(E) 2SC1841(F)/(E)	TRANSISTOR	D47	2760049008	1\$2076	DIODE
TR08	2730235020	2SC1841(F)/(E)	TRANSISTOR	D48 D49	2760049008 2760049008	1 S2076 1 S2076	DIODE DIODE
TR09	2710102005	2SA1015(Y)	TRANSISTOR	D50	2760049008	1S2076	DIODE
TR10	2710102005	2SA1015(Y)	TRANSISTOR	1	2700013000	L	
TR11	2710102005	2SA1015(Y)	TRANSISTOR			RESISTORS	
TR12	2710102005	2SA1015(Y)	TRANSISTOR	VR01	2116014043	SEMI FIXED RESI	
TR13	2710110000	2SA916(L) 2SA916(L)	TRANSISTOR TRANSISTOR	VR02	2116014043	SEMI FIXED RESI	STOR 500 ohm
TR14	2710110000 2710110000	2SA916(L)	TRANSISTOR				
TR16	2710110000	2SA916(L)	TRANSISTOR				
	2730205005	2SC1941(L)	TRANSISTOR	A Sittle			250 11 2
R17 R18	2730205005	2SC1941(L)	TRANSISTOR	EDF AN	Career Meter	COMPANY SECTION	
TR19	2730198015	2SC1815(BL)	TRANSISTOR				1.5151.5
TR20	2730198015	2SC1815(BL)	TRANSISTOR	<b>企</b>	WHEN WA	ardenim sees a	h everyour remit
TR21	2730198015	2SC1815(BL) 2SC1815(BL)	TRANSISTOR TRANSISTOR	14 Sec. 15 15 15 15 15 15 15 15 15 15 15 15 15		E101	CARRON ELL
TR22 TR23	2730198015 2750024059	μPA68H(M)/(N)	FIELD EFFECT	R05	2412157002	510 k ohm ±5% ¼V	
25	2.0002-1003		TRANSISTOR	R06	2412157002 2412318029	510 k ohm ±5% ¼V 4.7 k ohm ±2% ¼V	
TR24	2750024059	μPA68H(M)/(N)	FIELD EFFECT	R08	2412318029	4.7 k ohm ±2% ¼V	
			TRANSISTOR	R09	2412318029	4.7 k ohm ±2% ¼V	V CARBON FILM
TR25	2750020024	2SK163(M)/(N)	FIELD EFFECT TRANSISTOR	R10	2412318029	4.7 k ohm ±2% 1/4V	
TR26	2750020024	2SK163(M)/(N)	FIELD EFFECT	R11	2442002020		METAL OXIDE FI
11,20	2750020024.	25/(105/(4///(14/	TRANSISTOR	R12	2442002020		METAL OXIDE FI
TR27	2730199027	2SC2238(Y)/(O)	TRANSISTOR	R15	2412114003 2412114003	8.2 k ohm ±5% ¼V 8.2 k ohm ±5% ¼V	
TR28	2730199027	2SC2238(Y)/(O)	TRANSISTOR	R17	2412114003	8.2 k ohm ±5% ¼V	
TR29	2740060007	2SD667A(C)	TRANSISTOR	R18	2412114003	8.2 k ohm ±5% ¼V	V CARBON FILM
TR30	2740060007	2SD667A(C)	TRANSISTOR	WANTED BY	141 1 KI COPPE	400000000000000000000000000000000000000	W. Construction of the Maria
TR31	2730247021	2SC2921 LB(O)/(Y) 2SC2921 LB(O)/(Y)	TRANSISTOR TRANSISTOR				\$ PRINTE
TR32	2730247021 2710145020	2SC2921LB(O)/(Y) 2SA1215LB(O)/(H)	TRANSISTOR	A RED	122 ES-11076	300 Jun - 55 15	y same value
TR34	2710145020	2SA1215LB(O)/(Y)		1000	0446444006	6.2 k ohm ±5% %V	CARRON EU M
TR35	2730247021	2SC2921 LB(O)/(Y)	TRANSISTOR	R21	2412111006	6.2 k ohm ±5% ¼V	CARBON FILM
TR36	2730247021	2SC2921 LB(O)/(Y)	TRANSISTOR	R22	2412111000	56 k ohm ±5% %V	V CARBON FILM
TR37	2710145020	2SA1215LB(O)/(Y)	TRANSISTOR	R24	2412134009	56 k ohm ±5% %V	CARBON FILM
TR38	2710145020		TRANSISTOR TRANSISTOR	44.1925	21.018(0.10.10.10.10.10.10.10.10.10.10.10.10.10	Salaajim salaa V	( MENTAL OXIO) 5 F
TR39	2720053005 2720053005	2SB647A(C) 2SB647A(C)	TRANSISTOR			restronto estado do	CARRON COMPO
TR41	2720053005	2SC1815(Y)	TRANSISTOR	R27	2420203003	10 M ohm ±10% %V	CARBON COMPOS CARBON COMPOS
R42	2730198002	2SC1815(Y)	TRANSISTOR	R28	2420203003 2420203003	10 M chm ±10% %V	CARBON COMPOS
R43	2710102005	2SA1015(Y)	TRANSISTOR	R29 R30	2420203003	10 M ohm ±10% %V	CARBON COMPOS
TR44	2710102005	2SA1015(Y)	TRANSISTOR	R31	2412130003	39 k ohm ±5% 1/4 V	V CARBON COMPOS
TR45	2710104029	2SA968(Y)/(O)	TRANSISTOR	R32	2412130003	39 k ohm ±5% ¼V	CARBON FILM
TR46	2710104029	2SA968(Y)/(O) 2SA1015(Y)	TRANSISTOR TRANSISTOR	WATERS-	74: F2: (E0:10)	selo do come servicio	기 선수(원리)() 본(변)() 기 선수(원리)() 본(변)()
TR49	2710102005 2710102005	2SA1015(Y)	TRANSISTOR		11.00 M 7 2 3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4		
D01	2760219003	HZ-15	DIODE	1 (18)	2)12(1000)	발표적의 첫 중심인 시험점	
D02	2760219003	HZ-15	DIODE	M 735	22(123)(70)(0)	40 atm 020 39	
D03	2760219003	HZ-15	DIODE				SV 4 (14) 14 (14) 2 *** * * * * * * * * * * * * * * * *
D04	2760219003	HZ-15	DIODE	7/1 EE	724 (20 70:0)	Fig. gone seen so	V GARRON PLEN
D05	2760171028	HV-23G(YL)	DIODE				2.01315.2
D06	2760171028	HV-23G(YL) 1S2076	DIODE	AL TEV	2000 HOSE.	34.0110 350 20	y garriog file in
D07 D08	2760049008 2760049008	1\$2076 1\$2076	DIODE				3.91945
D08	2760049008	1\$2076	DIODE	-W1330	致(统):1050	if/olime 25/ 10	
D10	2760049008	1S2076	DIODE				
D11	2760049008	1S2076	DIODE .	(1. (3.40)	Astraction.		
D12	2760049008	1S2076	DIODE	W. Ferri			
D13	2760049008	1S2076	DIODE				
D14	2760049008	1S2076	DIODE	120 32			
D15	2760216019 2760216019	KB-265 KB-265	DIODE				
D16	2760049008	1S2076	DIODE	10 2 2 4			
D18	2760049008	1S2076	DIODE				
D21	2760254000	HZ-7B-3	DIODE	11.00			
D22	2760254000	HZ-7B-3	DIODE	30.37			
D23	2760049008	1S2076	DIODE				
D24	2760049008	1S2076	DIODE	R45			CARBON FILM
D25	2760254000 2760254000	HZ7B-3 HZ7B-3	DIODE DIODE	R46	2412044005	10 ohm # ±5% %W	/ CARBON FILM
D26 D27	2760254000 2760049008	1S2076	DIODE	R47	2412044005	10 ohm \$ ±5% %W	CARBON FILM
D27	2760049008	1S2076	DIODE	R48	2412044005	.10 ohm 🔧 ±5% %W	CARBON FILM
ADD	2760049011	1S2076A	DIODE				
D29	2/00073011	THE THE PARTY OF T					

(Con.)

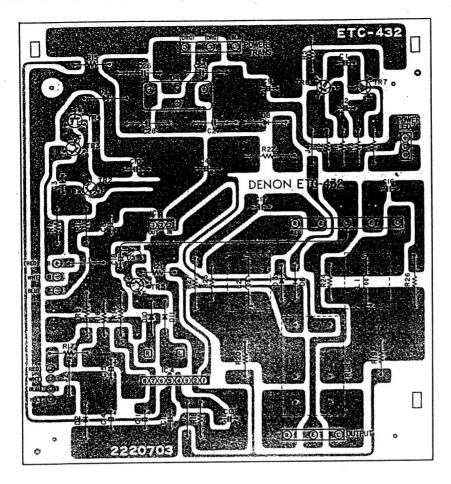
· Ref.	Part No.	Part Name 8	Descriptions	Ref.	Part No.	Part Name 8	k Descriptions
AV (10)	2.1726(15.57)	750 ann 253 an	everely are vi	1/2 (1/2)	2418313033	377.2500 (923-30)	SAFEION FILM
18 (F) (A)	20 81800	750.00m - 83 (M)	아시티아시 카드아 아시티아시 카드아	को सम्बद्ध	李타조바달리	377 gnm - 270 33W	671.00() 217() 212(0) 2
161: A. X =151:	20000000000	是多题的 <b>爱</b> 别	METAL OXIDE BILLI METAL OXIDE BILLI GARIBLE	के साई	(大) - (1) (1) (1) (1)	19 5 20m 85 30	FUSIBLE PARISTY FILL PROMITE
7 350 7 325	21 2 3 3 3	De le prime este l'il Edenime este (VI	हर्जनहों है। इस्सार्थ है	<b>必</b> 研究	क्षा ज्या लाइकी	13 s. 1 m . 35 (2)	CARRONFILL PUSIBLE
क्षे अद्भा	ZHUZHULUS:	्राध कामा 📆 🕬	6.45(86)N =11N 5001915	A 計25	का जा विद्या	110 cm - 35 m	SYSTEM STEM
CEFF AV	Repairing.	To some 533 All	CAPERON FILM FUNITE	鱼和树	到多可数	\$70 ctm 235 209	्रमात्रक्षात्रक्षेत्रक्ष
<b>△</b> HEE	25 (25)	20 kom - 32 '891		(A) 新沙	20120(400)	। इ.५ व्यक्तिः । इति १४४४	CARTED N = ILUI
के अग्र	34 81 31 31	BEDDE BY Y	CAREKON ELLAN	A) Fr (25)	28175 (300)	17. E. O. P. 19. 19.	CARRIED TO THE DESIGNATION OF TH
क्षेत्र क्षेत्र	2412811950E	I wanted a some	SCHEEN STEEL	A. 种类	्रेट । इंडिन <b>इंडि</b> न		SORING THAT
R59 R	2412131002 2412131002	43 k ohm ±5% ¼W	CARBON FILM	ાં મેં કદાવા	31 (20 (5.19)		CAPRON FILM
R61 R62	2412121009 2412121009	16 k ohm ±5% ¼W	CARBON FILM CARBON FILM	A 7.19)	沙逐州建筑	worm we an	SPRIEFE VINDORCE FERE
R63 R64	2412131002 2412131002	43 k ohm ±5% 1/4W	CARBON FILM CARBON FILM	क्षा हो हरू	241261300	to a management of the state of the	ងកើរព្រះជ កកម្មវិញិហ្គង កែប្រ
R65 R66	2412121009 2412121009	16 k ohm ±5% 1/4W	CARBON FILM CARBON FILM	企和多	21:20 BLOS		Caribon Film Parible
R67 R68	2412113004 2412113004	7.5 k ohm ±5% ¼W 7.5 k ohm ±5% ¼W	CARBON FILM	<b>公子で</b>	2.10% (30.00)		ENSERON FILM
10 5(59)	74:1/8) S19:10:		Carrier Parky Sections Section	W SHIP	251283008 26283008		SYSTEM SPETTING SYSTEM SYSTEM
<b>沙沙</b>	20/35 KUID	Rai Barra Barra Barra	MENT OXIDESIEN		2920 B03	1000im -3530)	ENGINEE .
R73	2412112005	Kana and Ave	METAL OXIDE FILM	W ±038	24120 KICOS	Reference to the year.	PUNIBLE EARBOUFILU
R74	2412112005	6.8 k ohm ±5% 1/4W	CARBON FILM	R139	2412068007		CARBON FILM
·	222(0) (3652) 22(6) (4) (4) (2)	3 7 500 49% 19. 3 7 500 49% 19.	MERAL CHIDE FILM	R140 R141	2412068007 2432026029		CARBON FILM
	220013023	aronn -30 W	NEATONOETEN NEATONOEEFN NEATONOEEFN	R142	2432026029	1 ohm/1 ohm ±10%	WIRE WOUND
<b>亚</b>	2510 2210 ) (502) 2210 ) (602) 2210 ) (62) 236 (72)	470m - 36 W 70m - 453 W	部   三日   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100   100	R143	2432026029	1 ohm/1 ohm ±10%	
	22(00):0025 23(00):0025	: 437.0000 1330 We : 35.000 1260 W	VIELVE OXIDE SIEW	R144	2432026029	1 ohm/1 ohm ±10%	
A 1821	241745-131543	Bann <i>Es</i> W	Nauvrowiga sirvi sediora	<b>小连柏</b>	3(1) (3) (3) (3) (3) (3) (3) (3) (3) (3) (3	(COOM : 2253)	WIRE WOUND W WIRE WOUNI
A 3335	युक्ता <u>र</u> क्षेत्रहरू	skojim 2000 ZAVI	ERSBER TETAL OXIDE FILL ERSBER	A Feed	201 PR 1 (100)	1000m <u>18</u> 869	#6원[9년] W WikielWorki #6원[9년]
A Figur	<u> </u>	- 15000m - 1500 W	METAL OXIDE FILM	<u> </u>	25/AH3008	1000m 26331	
1 767	- <u>श्रीक्षाक्र</u> सीज	Bom <i>- St 1</i> W	METAL OXIDE FILM	W 1418	2466 8003	00am 2331	ง พระจันอยู่ เกษายน
W #88	3,998,382	Som Se AU	Matal exercisely	W ME	25)2313003	1000m 23391	ัพ พละพอยก พ
<b>沙 號</b>	<b>THE STATE</b>		MERAL OXIDE PLEM FURBLE	沙 钟题	201261600B		FISBLE
77 EGO	21961300		HORBETT OXIDE SIFW	ें अञ्	24FBR003	1000m 233315	FUSIBLE
R91 R92	2412128002 2412128002	33 k ohm ±5% ¼W	METAL OXIDE FILM METAL OXIDE FILM	<b>水 30.25</b>		1 <b>0</b> 00000 - 2000 1	PUSBLE .
R93 R94	2412128002 2412128002	33 k ohm ±5% ¼W	METAL OXIDE FILM METAL OXIDE FILM	R153 R154	2412116001 2412116001	10 k ohm ±5% 3.15	W WIRE WOUN
77 :65 70 :60 :	22.2 (1.1922.1923) 22.2 (1.1922.1923)	2/01m 455 W	MELYFE ON OBESTEWN MELYFE ON OBESTEWN MELYFE ON OBESTEWN	R155 R156	2412068007 2412068007	100 ohm ±5% 3.15 100 ohm ±5% 3.15 1 k ohm ±5% 3.15	W WIRE WOUN
A ₹97 A ₹98	2410683026 2412155004	20 ohm 45% 1W 430 k ohm ±5% ¼W	別は最大的の対向に対応が	R157 R158 R159	2412092002 2412092002 2412108006	1 k ohm ±5% 3.15 4.7 k ohm ±5% 3.15	W WIRE WOUND
R99 R100 R101		430 k ohm ±5% %W		R160 R161	2412108006 2790006011	4.7 k ohm ±5% 3.15 100 ohm (112101-2)	
R102 R103			CARBON COMPOSIT	- R162	2790006011	100 ohm (112101-2)	0:1712(0))
R104 R105	2412164008	1 M ohm ±5% ¼W 6.8 k ohm ±5% ¼W	CARBON FILM	小红红	2.519251(362)5	0 <b>20.300</b> -54.400 -120.300 -52.417	FLABLE (ARSS)() FIL()
R106 R107	2412112005 2412128002	6.8 k ohm ±5% ¼W 33 k ohm ±5% ¼W	CARBON FILM	(F143) (IV	2100211045	1-3.0hm 4-73-101	MENANGARIE PI
R108 R109	2412112005	33 k ohm ±5% ¼W 6.8 k ohm ±5% ¼W	CARBON FILM	R167	2412116001	10 k ohm : ±5% %W	CARBON FILM
R110 R111	2412112005 2412112005	6.8 k ohm ±5% ¼W 6.8 k ohm ±5% ¼W	CARBON FILM	R168 R169	2412116001 2412130003	10 k ohm ±5% ¼W	CARBON FILM CARBON FILM
R112 R113	2412132001	6.8 k ohm ±5% ¼W 47 k ohm ±5% ¼W 47 k ohm ±5% ¼W	CARBON FILM	R170 R171	2412130003 2412130003	39 k ohm ±5% ¼W 39 k ohm ±5% ¼W	CARBON FILM
R114 R115	2412132001 2412108006	4.7 k ohm ±5% %W 4.7 k ohm ±5% %W 4.7 k ohm ±5% %W	CARBON FILM	R172 R173	2412130003 2412108006	39 k ohm ±5% ¼W 4.7 k ohm ±5% ¼W	CARBON FILM
R116 R117 R118	2412110007	5.6 k ohm ±5% ¼W 5.6 k ohm ±5% ¼W	CARBON FILM	R174	2412108006 2440037026	4.7 k ohm ±5% ¼W 470 ohm ±5% 1W 470 ohm ±5% 1W	METAL OXIDE FII
R119		680 ohm ±5% %W 680 ohm ±5% %W	CARBON FILM	R176 R177 R178	2440037026 2440044022 2440044022	1.8 k ohm ±5% 1W 1.8 k ohm ±5% 1W 1.8 k ohm ±5% 1W	METAL OXIDE FIL
444	<b>动脉神经动脉</b>			A Charleton beach the second	al action statement to state be final records	1.8 K Onm 25% IV	Complete Annual Control of Contro

· Ref.	Part No.	Part Name & Descriptions
1/2 F1 (2)	्रमञ्जूषात्त्व	Promi PES W SAREOVELO
al street	상카호카덕(경기	
को साई	123 - 261 (degl)	
<b>亚</b> 邦梁。	25159139 <b>5</b> 2	
益 計25	रका देश विद्या	संतरकात - १५ का हिस्सिठिय होत्या इस्त्राहरू
<u> </u>	24120185	STORES RESIDENCE UN SARBOUT UN
A. 新沙/	2012000	to scome 2825 aw Carretton FED
11 70 23	23 (25) (402);	TERRITOR DE TÀ CATRONELLA
水种类	्रेट का <b>वे</b> ट्स	
્યું કરાવદ	34 (25 (5.05)	1/0 30m - 224 (5/4 CAPECIA PLEA) FIRMER
A 210	2012年12月	TORON PAR AN ARBOYCELLA FUNDEE
M strain	29 26 19695	HOUSER POR SWINGS FUNC
企 和 要	21:25 BCC	100 of the 1222 All Careson Files
A PHIE	<b>建中秦</b> 河亚亚	100 otto 925 (A) ( (A) ((A) (
W Elife	24128 ECU:	COOM AS AN EARLY THE CAN MOOD
<u> A</u> F166	4469 BMB	©েলাল ক্রিকিস ব্যবস্থিত বাদ্ধা ক্রিকাল
77 PH 107	2503 13033	10000m 446.30 0.018000 FLAN FUNDER
W 1981	ZIPS ROW	1000 อกกับ 223 AV ยากับอัก ค.ศ.ก์ สมภัยย
R139 R140 R141	2412068007 2412068007 2432026029	100 ohm ±5% ¼W CARBON FILM 100 ohm ±5% ¼W CARBON FILM 1 ohm/1 ohm ±10% 3.15W
R142	2432026029	WIRE WOUND 1 ohm/1 ohm ±10% 3.15W WIRE WOUND
R143	2432026029	1 ohm/1 ohm ±10% 3.15W WIRE WOUND
R144	2432026029	1 ohm/1 ohm ±10% 3.15W WIRE WOUND
्र स्ट्रा	TERRESIDE	COONN ≱233 IN WREVELLE RUSIRLE
<u> </u>	WHAT HALLS	100 gim (1996 33 fall)   VIRE WOUND   Rusi Bus
V Seed	24 PAN 13008	্রত্তিপুর্বাক্ত প্রস্তুর বিশ্বর প্রতিপূর্ব প্রতিপূর্ব প্রতিপূর্ব পরিক্রাপার প্রতিপূর্ব পরিক্রাপার প্রতিপূর্ব প
小种的	24525 (1003)	- 150 aum - \$23 3 1500 - 1516 1516 1516 1516 1516 1516 1516 15
W HED	25/20191113	1000 ক্রমের প্রক্রিক জাতে ১৯৫৫ সাম হার্মিক জাতে ১৯৫৫ সাম হার্মিক জাতে ১৯৫৫ সালে ১৯৫ সালে ১৯৫৫ সালে ১৯৫ স
<b>亚科</b>	WE WILL	Oolorm 576345W MR=VOUV
ए अञ	2112 CO	FUSIBLE
₩ 30.25	AMES SCOR	FUSIBLE .
R153 R154	2412116001 2412116001	10 k ohm ±5% 3.15W WIRE WOUND 10 k ohm ±5% 3.15W WIRE WOUND
R155 R156	2412068007 2412068007	100 ohm ±5% 3.15W WIRE WOUND 100 ohm ±5% 3.15W WIRE WOUND
R157 R158	2412092002 2412092002	1 k ohm ±5% 3.15W WIRE WOUND 1 k ohm ±5% 3.15W WIRE WOUND
R159 R160	2412108006 2412108006	4.7 k ohm ±5% 3.15W WIRE WOUND 4.7 k ohm ±5% 3.15W WIRE WOUND
R161 - R162	2790006011 2790006011	100 ohm (112101-2) 100 ohm (112101-2)
V 5008}	(2) PX; (3):30	ार्थी तुम्मः
小生的	AFFATERED.	Pedono Los an Angentis
WELLED WELLED	2210211045 2210211045	
R167 R168	2412116001 2412116001	10 k ohm ±5% ¼W CARBON FILM 10 k ohm ±5% ¼W CARBON FILM
R169 R170	2412130003 2412130003	39 k ohm ±5% ½W CARBON FILM 39 k ohm ±5% ½W CARBON FILM
R171 R172	2412130003 2412130003	39 k ohm ±5% ½W CARBON FILM 39 k ohm ±5% ½W CARBON FILM
R173 R174	2412108006 2412108006	4.7 k ohm ±5% ¼W CARBON FILM 4.7 k ohm ±5% ¼W CARBON FILM
R175 R176	2440037026 2440037026	470 ohm ±5% 1W METAL OXIDE FILM 470 ohm ±5% 1W METAL OXIDE FILM
R177	2440044022	1.8 k ohm ±5% 1W METAL OXIDE FILM 1.8 k ohm ±5% 1W METAL OXIDE FILM

Con.)						
Ref. No.	Part No.	Part Name & Descriptions ,				
(4) 下点	24PA(11)52	(1925) pri (1578) (1997) (1956) (1975) (1977) priestien i				
A = 1 = 0	ATT-XXXXIII	BY DIE CONTROL STATE				
がまでを	35135-151151	region - Secretar recording retails				
W Bitte	2.5 przy 1 7e) ses	the Sun to Supervise the All the Supervise to the All				
		11、11、11、11、11、11、11、11、11、11、11、11、11、				
CAPACITORS						
C01	2544015009	10μF 16V ELECTROLYTIC				
C02	2544015009	10µF 16V ELECTROLYTIC 100pF ±5% 50V MICA FILM 100pF ±5% 50V MICA FILM				
C03	2521034003	100pF ±5% 50V MICA FILM				
C04	2521034003	100pF ±5% 50V MICA FILM				
C05	2544044009	1μF 50V ELECTROLYTIC				
C06	2544044009	1µF 50V ELECTROLYTIC				
C07	2554149004	0.0015µF ±5% 50V PLASTIC FILM 0.0015µF ±5% 50V PLASTIC FILM				
C08	2554149004					
C09	2544015009					
C10	2544015009					
C11	2561026000					
C12	2561026000	$1\mu$ F ±10% 125V METALIZED FILM 8pF ±0.5pF 50V MICA FILM				
C13	2521008000	8pF ±0.5pF 50V MICA FILM				
C14	2521008000	18pF ±5% 50V MICA FILM				
C15	2521016005					
C16	2521016005	18pF ±5% 50V MICA FILM 47pF ±5% 50V MICA FILM				
C17	2521026008	47pF ±5% 50V MICA FILM				
C18	2521026008 2521081030	5pF ±0.5pF 500V MICA FILM				
19	2521081030	5pF ±0.5pF 500V MICA FILM				
<u> </u>	2554145008	0.001 µF ±5% 50V PLASTIC FILM				
C21	2554145008	0.001 JF +5% 50V PLASTIC FILM				
C22	2554084017	0.01µF ±5%100V PLASTIC FILM 0.01µF ±5%100V PLASTIC FILM				
C23 C24	2554084017	0.01µF ±5%100V PLASTIC FILM				
C25	2554161008	1 0 0047#F +5% 50V PLASTIC FILM				
C25	2554161008	0.0047#F +5% 50V PLASTIC FILM				
C27	2554161008	0.0047µF +5% 50V PLASTIC FILM				
C28	2554161008	IN DOMATUR +5% 50V PLASTIC FILM				
. C29	2554161008	0.0047µF ±5% 50V PLASTIC FILM				
C30	2554161008	0 00474F +5% 50V PLASTIC FILM				
C31	2554161008	0.0047µF ±5% 50V PLASTIC FILM				
<b>ඎ</b>	2554161008	0.0047µF ±5% 50V PLASTIC FILM				
<b>C33</b>	2544059081	10µF 63V ELECTROLYTIC				
C34	2544059081	10µF 63V ELECTROLYTIC				
C35	2544059081	10µF 63V ELECTROLYTIC				
C36	2544059081	10µF 63V ELECTROLYTIC				
C37	2544060025	1μF 100V ELECTROLYTIC				
C38	2544060025	1μF 100V ELECTROLYTIC				
C39	2544060025	1μF 100V ELECTROLYTIC				
C40	2544060025	1μF 100V ELECTROLYTIC				
C41	2561017019	0.01µF ±10% 630V METALIZED FILM 0.01µF ±10% 630V METALIZED FILM				
C42 .	2561017019					
C43	2521014007	15pF ±5% 50V MICA FILM				
C44	2521014007	15pF ±5% 50V MICA FILM				
C45	2521014007	15pF ±5% 50V MICA FILM				

Ref. No.	Part No.	Part Name & Descriptions .		
C46	2521014007	15pF ±5% 50V MICA FILM		
C47	2554161008	0.0047µF ±5% 50V PLASTIC FILM		
C48 .	2554161008	0.0047µF ±5% 50V PLASTIC FILM		
C49	2554121006	100pF ±5% 50V PLASTIC FILM		
C50	2554121006	100pF ±5% 50V PLASTIC FILM		
C51	2554131009	270pF ±5% 50V PLASTIC FILM		
C52	2554131009	270pF ±5% 50V PLASTIC FILM		
C53	2544004007	220µF 6.3V ELECTROLYTIC		
C54	2544004007	220µF 6.3V ELECTROLYTIC		
C55	2544004007	220µF 63V ELECTROLYTIC		
C56	2544004007	220µF 6.3V ELECTROLYTIC 1µF 50V ELECTROLYTIC		
C57	2544044009			
C58	2544044009			
C59	2544044009			
C60	2544044009	1μF 50V ELECTROLYTIC 270pF ±5% 50V PLASTIC FILM		
C61 C62	2554131009 2554131009	270pF ±5% 50V PLASTIC FILM		
C62 C63	2544060025	1μF 100V ELECTROLYTIC		
C64	2544060025	1μF 100V ELECTROLYTIC		
C65	2544060025	1μF 100V ELECTROLYTIC		
C66	2544060025	1μF 100V ELECTROLYTIC		
C71	2521034003	100pF ±5% 50V MICA FILM		
C72	2521034003	100pF ±5% 50V MICA FILM		
	2021001000	OTHER PARTS		
RL01 RL02	222070007 2090047903 EP-5667H1 EP-6071 2035622008 2050122033 2050075025 2140029004 2140029004 2030223017 2030223020 4450033005 4170139001 4700012022 4120871005 4120872004 4120873003 4120874002 4730354035	P.W. BOARD 0.6 JUMPER WIRE SHORTLEAD USED 74 TERMINAL FOR WRAPPING PIN USED 2 BASE PIN USED 6 3P. CONNECTOR BASE USED 2 3P. CONNECTOR PIN ASS. USED 4 2P TERMINAL USED 2 REED RELAY 1P. CONNECTOR CORD FOR L 1P. CONNECTOR CORD FOR R WIRE CLAMP BAND USED 4 POWER RADIATOR USED 2 CROSS PAN SCREW WITH S. WASHER 3×12 USED 16 RADIATOR BRACKET (A) USED 2 RADIATOR BRACKET (B) USED 2 BRACKET (A) USED 2 BRACKET (B) USED 2 TAPPING SCREW (2)3×8 USED 16		
		1		

#### POWER SUPPLY & PROTECTOR UNIT ETC-432

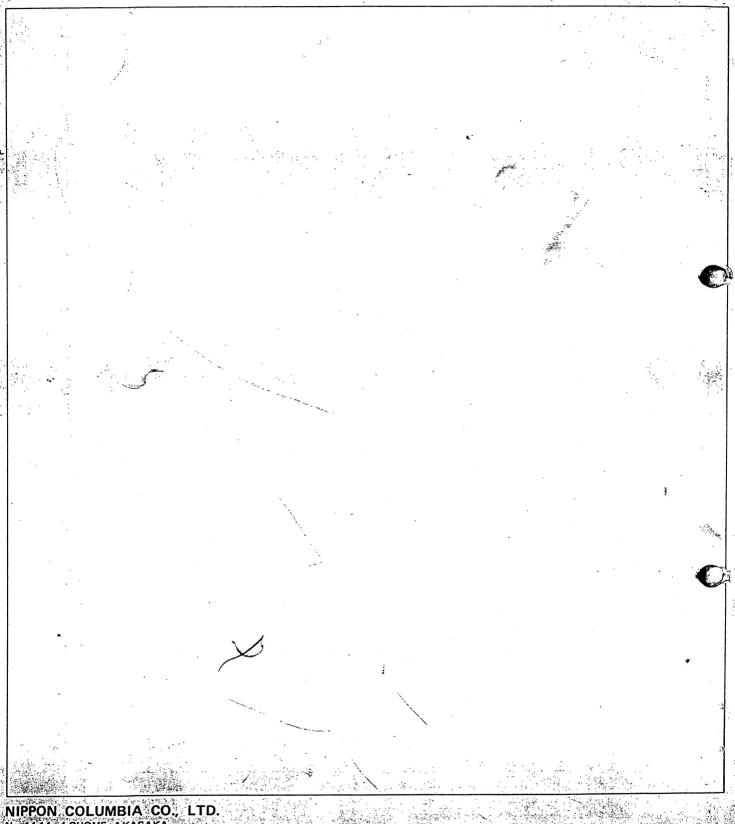


Ref. No.	Part No.	Part Name & Descriptions						
SEMICONDUCTORS								
IC03 IC04 TR02 TR03 TR04	2630155006 2630102004 2710102005 2710105002 2750018023	μPC78M15 HA12002W 2SA1015(Y) 2SA966(Y) 2SK30A(R)/(O)	INTEGRATED CIRCUIT INTEGRATED CIRCUIT TRANSISTOR TRANSISTOR FIELD EFFECT TRANSISTOR					
TR05 TR07 TR08 D01 D02 D03 D04 D05 D06 D08 D10	2730235004 2730198031 2730198031 2760237001 2760244007 2760237001 2760239009 2760244007 2760049008 2760239001 2760049011	2SC1841(F) 2SC1815(BL)/(GR) 2SC1815(BL)/(GR) RV06 MZ303A RV06 S1RBA20F MZ303A 1S2076 RV06 1S2076A	TRANSISTOR TRANSISTOR TRANSISTOR DIODE					
	RESISTORS							
R01 R02 R03 R04 R05 R08 R09 R10 R12 R13 R14 R15 R16 R17 R18 R19 R20	2410185005 2412152007 2412152007 2412126004 2412084007 2410179008 2412116001 2412120000 2412120000 2412120000 2412120000 2412120000 2412120000 2412120001 2412129001 2412129001 2412129001	330 k ohm ±5% ½W 330 k ohm ±5% ½W 470 ohm ±5% ½W 470 ohm ±5% ½W 10 k ohm ±5% ½W 15 k ohm ±5% ½W 15 k ohm ±5% ½W 15 k ohm ±5% ½W 17 k ohm ±5% ½W 18 k ohm ±5% ½W 19 k ohm ±5% ½W 10 k ohm ±5% ½W 10 k ohm ±5% ½W 10 k ohm ±5% ½W	CARBON FILM					

Ref. Part No. Part Name & Descriptions	Part Name & Descriptions						
R22 2440013024 4.7 ohm ±5% 1W METAL OXID							
R24 2412060005 47 ohm ±5% %W CARBON FIL							
R25 2412060005 47 ohm ±5% ¼W CARBON FIL	M						
R26 2440017020 10 ohm ±5% 1W METAL OXID	EFILM						
R27 2440017020 10 ohm ±5% 1W METAL OXID	EFILM						
CAPACITORS							
C01 2544024003 4.7µF 25V ELECTROLY	ric						
C02   2544024003   4.7µF   25V ELECTROLY	LIC 💽 🕽						
C02 2544024003 4.7μF 25V ELECTROLY C03 2521018003 22pF ±5% 50V MICA FILM							
C04   2544079016   2200µF   25V ELECTROLI							
C08 2544015009 10µF 16V ELECTROLY	HC						
C09 2544038002 100μF 35V ELECTROLY C10 2544039001 220μF 35V ELECTROLY C11 2544044009 1μF 50V ELECTROLY C12 2544066003 2.2μF 50V ELECTROLY	110						
C10   2544039001   220µF   35V ELECTROLY	110						
C11   2544044009   1µF	ric						
C12   2544066003   2.2µF	110						
C13 2544005006 330µF 6.3V ELECTROLY	TIC +						
C14 2544003008 100µF 6.3V ELECTROLY	ric						
C15 2549015004 2.2µF ±10% 10V ELECTROLY	110						
C16 2561017035 0.022µF ±10% 630V METALIZ							
017 2001017000 0.0225.							
C18   2544009002   47µF   10V ELECTROLY	ZED						
C25 2561016007 0.068µF ±10% 400V METALIZ C26 2561016007 0.068µF ±10% 400V METALIZ	ZED						
C26   2561016007   0.068µF ±10% 400V   METALIA   C27   2561016007   0.068µF ±10% 400V   METALIA	ZED						
020 200101001 01000							
OTHER PARTS	To the suff						
2220703004   P.W. BOARD   2090008120   JUMPER SHORTLEAD P=10mm US	FD4						
2090008120 JUMPER SHORTLEAD P=10mm US							
EP-6071 BASE PIN USED 2	94						
2050087039 3P. TERMINAL USED 2	A. W. 34.						
2050087055 5P. TERMINAL USED 1 2035622008 3P. CONNECTOR CORD (FOR +B,-	-B.E)						
	r LED)						
	7-7-1						
L01 2320017001 INDUCTOR L02 2320017001 INDUCTOR							
RL01 2140041008 RELAY	21. Hala 1 146						
4170043100 RADIATOR							
4730354019 TAPPING SCREW (2)3×8	A CONTRACT						

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### **DENON**



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